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**STRATEGY, STRUCTURE, AND PERFORMANCE
OF RURAL TRANSPORTATION COMPANIES**

MBTC FR-1058

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and Ken Zantow**

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16. Abstract <p>The purpose of this research is to understand how companies in the motor carrier industry gain and sustain competitive advantage. Specifically, we examine how competitive strategy, structure, and tactics relate to one another and to company performance. Data collected from top executives of 332 truckload (67%), less-than-truckload (16%), and special commodity carriers (17%) indicate that the trucking industry has a significant influence on the rural areas of the U. S. in terms of providing employment as well as customer service. Although companies are sensitive to issues of price, most companies pursue a strategy of differentiation based upon quality of service and customer responsiveness rather than low cost to gain competitive advantage. In general, executives believe that service, efficiency, and flexibility are key to competing in this industry. A majority of companies use, at least to some extent, modern tactics such as electronic data interchange, partnership with suppliers, total quality management, and activity based costing. Statistical analysis of the data reveals that different variables such as executive characteristics, their perceptions of environment, business strategy, organizational structure, tactics, and performance have direct as well as indirect relationships with one another.</p> <p>The report contains the Executive Summary.</p>			
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Strategy, Structure, and Performance of Rural Transportation Companies

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EXECUTIVE SUMMARY

The purpose of this research is to understand how companies in the motor carrier industry achieve competitive advantage. Specifically, we examine how competitive strategy, structure, and tactics relate to one another and to company performance. A broad sample of trucking companies resulting in 332 responses provided information for this study. These companies represented truckload (TL, 67%), less-than-truckload (LTL, 16%), and special commodity carriers (SC, 17%).

Respondents were top executives of the motor carrier companies. Most executives responding to this study were males, about 49 years old. On average, they have over 25 years experience with about half of that in their present position. About 15% of the respondents have been owner operators. These top executives are likely to own about 30% of the company. Over half of the executives have at least a college (bachelor's) degree. They have exposure to several areas but Management was the most frequently mentioned area of expertise. While over two-thirds of the executives make \$200,000 or less per year, 20% of LTL executives earn more than half a million dollars.

The following highlights give a quick overview of the findings of the study.

- The trucking industry makes a significant contribution to the quality of life in rural areas of the U. S.
- LTL companies are likely to have most of their business in the form of common carriage, TL more often provide contract carriage, and SC provide common and contract carriage about equally.
- Although companies are sensitive to issues of price, most companies pursue a strategy of differentiation based upon quality of service and customer responsiveness rather than low cost to gain competitive advantage. In general, executives believe that service, efficiency, and flexibility are key to competing in this industry. As expected, controlling driver turnover continues to be a significant concern of most executives.
- A majority of companies use, at least to some extent, modern tactics such as electronic data interchange, partnership with suppliers, total quality management, and activity based costing. Other tactics such as re-engineering, on-board computers, satellite tracking systems, and inter-modal operations are used by about a third of the companies.
- Executives tend to view their organizations as something that can be directed, as an experiment, a machine or a team, rather than as a family, a workshop, or a democracy.
- Executives think that the government has a strong influence on the industry.
- About 70% of the motor carrier companies responding are autonomous entities and are not part of a corporate parent. About three-fourths of the companies responding are privately held corporations and only 8% are publicly traded corporations.
- Change was reported to take companies in the same direction they were headed, consistent with their mission, in a continuous and incremental way, as opposed to a dramatic manner.

- Operating ratios reported by the companies range from 70% to 111%. The industry average operating ratio is about 95%, with TL and SC being somewhat more profitable, and LTL somewhat less profitable.

Statistical analysis of the data reveals that different variables such as executive characteristics, their perceptions of environment, company strategy, structure, tactics, and performance have direct as well as indirect relationships with one another. The following relationships are worth noting:

- Executives with more experience viewed industry environment as less turbulent. They also perceived industry environment to be less controllable, which may be attributed to their experiencing de-regulation and other drastic changes in the industry. In contrast, new executives were more likely to use the modern tactics such as benchmarking, partnerships with suppliers, and EDI, which may enhance their perceptions of the controllability of their industry environment.
- Executives' perceptions of their industry environment were related to their business strategies. For example, executives who perceive their industry environment to be more munificent, turbulent, and predictable, also tend to emphasize customer responsiveness and innovation strategies. Similarly, executives of companies with focus strategies viewed their environment to be less turbulent.
- Companies that emphasize business strategies of innovation and customer responsiveness also score higher on the internal structural variables such as specialization, standardization, and integrative mechanisms. However, companies that emphasize low cost and focus strategies vary widely how they use the coordination and control mechanisms.
- Company size and customer responsiveness tend to reduce operating ratios, whereas innovation tends to increase operating ratios. The effects of customer responsiveness and innovation increase as company size goes up.

SECTION I INTRODUCTION

Since deregulation in 1980, the trucking industry has seen many changes. Companies in the industry are competing as less-than-truckload (LTL) or truckload (TL) carriers, operating in specific regions of the country or nationally, focusing on one type of customer/good or serving several customer needs. These differences create an industry that has much variability to capitalize on the opportunities available in the environment, but little is known about how each of these strategic choices contribute to the competitive advantage or success of a company. Additionally, there are many opinions about how companies should compete within these different arenas, but no real answers. Changes in technology provide new tactics, but how these tactics affect companies in the different arenas has not been clearly addressed.

The study reported here is a comprehensive examination of strategy, structure, and performance in the motor carrier industry. The study sought the answers to questions such as: What opportunities and threats do motor carriers face in their current environment? What strengths do companies predominantly use to achieve competitive advantage? What types of strategies and tactics make motor carriers successful? How do changing information technologies affect motor carrier performance? Under what conditions are trends in the industry, such as EDI and intermodal operations, beneficial?

Answers to these and similar questions need a systematic collection and analysis of data. While archival databases can provide information about financial aspects of the industry, it is essential to bring in the insights from a large number of experienced top executives to understand the complexity of decision making about strategies and tactics. For these reasons, this study is designed to provide a comprehensive assessment about how competitive advantage is achieved in this dynamic industry.

This study was sponsored by the Mack-Blackwell National Rural Transportation Study Center (created and supported by the U.S. Department of Transportation) and by the Supply Chain Management Research Center in the College of Business Administration, University of Arkansas. In the following pages, we describe the background, the methods and sample, and the results of the study.

SECTION II

STUDY SAMPLE AND METHODS

This section discusses sample of the study and its methods and measures.

Study Sample

The original population for this study consisted of 2002 trucking firms that reported information to the Interstate Commerce Commission (ICC) and were included in the 1995 *TTS Blue Book of Trucking Companies*. Of these companies, we were most interested in those of sufficient size to have an established set of practices for conducting business. For this reason, and in order to compare the results of this study to those of a previous study, which focused on human resource issues, a criterion for inclusion in the study was that the company have at least 30 employees or \$5 million dollars in gross revenues. This resulted in a revised sample of 1619 companies. From these 1619 companies, 1100 companies were randomly selected. Thirty-one companies were unable to be contacted or refused to participate in the study. The remaining 1069 companies were considered the final sample for the study.

Methods and Measures

Following initial mail and telephone contacts, a 21-page questionnaire was mailed to the chief executive officer of each company remaining in the final sample. Several follow-up contacts were made with each potential respondent. In all, completed questionnaires were returned by 332 companies, yielding a response rate of 31%. These 332 responses form the major data base for the study.

The questionnaire was developed through a multi-step procedure. First, an extensive review of the strategic management and the trucking literature yielded a list of issues that were critical to study and potential questions with which to study these issues. Next, we went through several iterations to hone, clarify, and streamline their focus. Drafts were pretested among representatives of the trucking industry and experts in the field of transportation. Finally, the questionnaire incorporated input and learning from all previous steps.

The 21-page questionnaire contained the following major sections: (1) Company Mission; (2) Industry Environment; (3) Competitive Strategy and Tactics; (4) Organizational Structure and Control Systems; (5) Your (i.e., the respondent's) Perceptions; (6) Your (i.e., the respondent's) Background; and (7) Organizational Effectiveness and Change.

The respondents were top executives of the Motor Carrier Industry. More than two-thirds of the respondents were either CEO, President, Chairman, or Owner of the company. The remaining third were generally either Vice Presidents, Executive Vice Presidents, Corporate Officers (other than Chairman or President), Departmental Directors, or General Managers.

Data obtained through the questionnaires were supplemented with information contained in the *TTS Blue Book*. This information is reported by trucking companies to the Interstate Commerce Commission and is available publicly. Information on performance and safety issues, information about the structural characteristics of the company (e.g., size, fleet, etc.), and so on, was available in the *TTS Blue Book* and was used in the study to enrich data obtained through questionnaires.

Summary of Key Points

- Data were obtained from top executives of 332 large trucking companies.
- Questionnaire data were obtained about a wide variety of areas related to company mission, strategy and tactics, the industry environment, the organizational structure and control systems, background and perceptions of the top management, and about company effectiveness and change.
- These data were supplemented with information contained in the *TTS Blue Book of Trucking Companies*.

SECTION III

DESCRIPTIVE INFORMATION

This section discusses general significance of motor carrier industry for rural areas in the U.S., followed by characteristics of motor carriers in the sample in terms of type of companies, market scope, and workforce characteristics.

Rural Impact

An important goal of this research was to assess overall contribution of the trucking industry on rural communities. Respondents were asked to indicate the percentage of *customers* residing in cities/towns with population of less than 2,500. The survey results indicate that about 16% of the motor carriers' customers are in these locations, with LTL and SC percentages being somewhat higher, on average. A similar question was asked regarding the percentage of *drivers* residing in rural areas. An average of about 33% of the drivers were from rural areas, with this percentage being higher for TL and lower for TL and SC. Therefore, the trucking industry has a significant influence on the rural areas of the U. S. in terms of providing employment as well as customer service (See Exhibit III.1).

Characteristics of Companies

Type of companies

A total of 332 companies provided data for this study. Of these, 222 or about 67% indicated that they were primarily Truckload (TL) carriers, and 54 or about 16% indicated that they were primarily Less than Truckload (LTL) carriers. An additional 56 or about 17% categorized their company as other, most often some type of Specialized Commodity (SC) carriers.

The above-mentioned categories (LTL, TL, and SC) reflect the major emphasis that companies place on one type of activity more than another, but it is common for companies to pursue business in other categories. LTL companies, on average, had about two-thirds of their business from less-than-truckload freight, with the remaining business divided almost equally between SC and TL. Only about 11% of the LTL were pure less-than-truckload. TL companies reported over two-thirds of their business from truckload, with the remainder coming almost exclusively from SC. SC carriers reported in excess of three-fourths of their revenues from special commodities, with the remainder divided almost equally between TL and LTL. Nearly half of the SC carriers were pure SC (See Exhibit III.2 and III.3).

Another way to look at trucking companies is whether they are common or contract carriers. We asked respondents how much of their revenues came from common carriage and how much from contract carriage. On average, companies had about 43% of their revenues from common carriage and 57% from contract carriage. Twelve percent of the companies were pure common carriage and 16% of the companies were pure contract carriage. LTL companies averaged about two-third common carriage and about one-third contract carriage, while TL companies reversed these numbers.

SC companies averages were more even, with 46% common carriage and 54% contract carriage (See Exhibit III.2).

Market scope

Respondents also were asked to indicate whether they were local, regional, super regional, national, or international carriers. Most companies responded that they were regional or national carriers. This is particularly true for the TL and SC companies. Most LTL carriers reported being regional followed by local. The third most frequently reported market served by TL and LTL was super-regional, whereas for SC it was international (See Exhibit III.4).

Workforce characteristics

The companies reporting had an average of 2,188 total employees, with averages of 678 drivers and 95 owner operators. These numbers also varied greatly by type of carrier. As is commonly expected, LTL companies were larger than average, more likely to be union, and used fewer owner/operators. The TL companies were smaller, both in total employees and number of drivers, less likely to be union (86% reported that none of their drivers were unionized), and relatively more likely to use owner operators (See Exhibit III.4).

Summary of Key Points

- Of the companies responding to the survey, 67% were primarily TL, 16% primarily LTL, and 17% primarily SC.
- LTL companies are likely to also have TL and SC business, and have most of their business in the form of common carriage.
- TL companies are likely to have SC business, but have little LTL business, and more often provide contract carriage.
- SC companies are likely to have some TL and LTL business, with common and contract carriage provided about equally.
- Carriers compete primarily in a regional or national market, with TL more likely to be in national markets, LTL more likely to be local, and SC more likely to be international.
- The trucking industry makes a significant influence on the quality of life in rural area of the U. S.
- LTL companies are larger, less likely to use owner operators and more likely to be union than TL companies.

SECTION IV INDUSTRY ENVIRONMENT

This section discusses top executives' perceptions of the environment in the motor carrier industry.

Characteristics of the Environment

We asked the respondents about the environment of the motor carrier industry based upon their perceptions of the behavior of suppliers, competitors, and customers over the past three years. There are five aspects of the environment that were of particular interest: munificence (abundance of resources), complexity, turbulence, predictability, and control.

Munificence is the extent to which the environment can sustain growth of an industry. Perceptions of munificence reflect how respondents view the industry's growth in terms of sales, profits, employment, etc. The majority (54%) of the executives believe that industry munificence is about the same. Another 42% of respondents indicated that the environment has improved over the last three years. LTL executives were more likely than SC and TL to report the improvement (Exhibit IV.1).

The environment can also be perceived in regards to its *complexity*. Respondents indicated to what extent they perceived the environment to be complex and difficult to understand. Forty eight percent of respondents indicated that the environment involved only a little or no complexity. Others (35%) thought that the environment was complex to some extent, whereas 17% reported that it was complex to a large extent. LTL companies tended to see the environment as more complex than TL or SC carriers (See Exhibit IV.2).

How the environment is changing can be viewed from both how rapidly the change is occurring and how predictable the changes are. *Turbulence* is a concept that reflects the speed or frequency of change. Respondents were asked to indicate their perception of change. About 57% of respondents indicated that there were a few changes in the environment. The other respondents were evenly divided between believing that there were many changes and a high degree of turbulence versus those believing that there were few or no changes. Overall, SC companies saw the environment as more turbulent and LTL companies saw it as less turbulent (Exhibit IV.3).

Most respondents (49%) viewed the change as predictable to some extent, whereas 41% indicated that the environment was a little predictable. Only about 10% thought that it was predictable to a large extent. The perceived degree of predictability was somewhat higher in LTL carriers than either SC or TL (Exhibit IV.4).

Control reflects how much the respondents felt that they could affect the behavior of suppliers, competitors and customers. A vast majority of respondents (86%) indicated that they had a little or no control over these aspects of the environment. This relative lack of controllability was fairly equally shared by all carriers. (Exhibit IV.5)

Our analysis shows that a higher degree of predictability tends to be associated with a higher degree of control, but there is no relationship between the degree of predictability and complexity. These results suggest that while executives believe that the more they can predict their environment the more they can control it. Interestingly, the complexity of the environment has little to do with what they can predict. In other words, company executives can predict behavior in both simple and complex environments. The executives tend to perceive as controllable what they can predict.

We did not find any direct significant relationship between the perceptions of these aspects of the environment and companies' operating ratios. Nevertheless, they appear to have indirect role in making adjustments among company strategy, structure, tactics, and performance. For example, executives who perceive their industry environment to be more munificent, turbulent, and predictable, tend to emphasize customer responsiveness and innovation strategies, whereas those who view their environment as less turbulent, tend to use a focus strategy. Similarly, executives who use tactics of partnerships with suppliers and benchmarking seem to perceive their industry environment to be controllable.

Summary of Key Points

- The industry environment was generally considered to be about the same in its ability to support growth over the last three years.
- Most respondents did not view the environment as complex.
- The environment can be seen as moderately turbulent and predictable to some extent.
- The behavior of suppliers, competitors, and customers was largely viewed as not being controllable.
- Company executives can predict behavior equally well in both simple and complex environments. They tend to perceive as controllable what they can predict.

SECTION V

COMPETITIVE STRATEGIES AND TACTICS

This section discusses companies' strategic choices and strengths that form the basis of their competitive advantage.

Strategic Choices

In order to understand how motor carrier companies compete, the respondents were asked what contributed to their competitive advantage relative to their competition. The objective was to learn about top executives' choices about strategies, tactics, and policies.

Strategies

A company can seek competitive advantage through its emphasis of general strategies of customer responsiveness, quality of service, innovation, and efficient productivity. These result in a generic orientation to differentiate the company's products or services from that of their competitors (a differentiation strategy), and/or to concentrate on finding advantage through lowering costs (low cost or cost leadership strategy). Respondents indicated to what extent they felt productivity, innovativeness, reliability, customization of services, and quick response were sources of their company's competitive advantage. While each of these sources of competitive advantage were considered to a large or very large extent as a source for their company's competitive advantage, reliability was rated the most (by 89% of the companies) followed by quick response (87%), customization of services (75%), and productivity (61%). Innovativeness was rated by the fewest of companies (55%) as a source of competitive advantage in the motor carrier industry (See Exhibit V.1).

To further explore strategies that companies use to gain competitive advantage, we provided respondents with a list of objectives that their companies might have, and asked them to indicate to what extent they used them. Four of these items were used by a majority of the companies to a large extent: improve customer satisfaction, offer higher quality services than competitors, offer innovative services, and match varied customer needs. These objectives are of a type that would differentiate the company's services from others on the basis of customer responsiveness, quality, or innovation. A majority of the respondents indicated that the three objectives of being the lowest cost provider in the industry, offering low prices, and striving for high volume were infrequently used. These objectives usually support a low cost strategy. One objective, offering competitive prices, seems to be used to at least some extent by 85% of the companies responding. While companies tend to emphasize objectives that will differentiate their company on the basis of customer responsiveness, quality, or innovation, rather than compete on the basis of high volume at a lower price, there is still significant pressure in the industry to price competitively. In other words, price by itself does not seem to be the basis of competitive advantage, but it is a significant consideration and is used with other moves (See Exhibit V.2).

It is common for company executives who emphasize customer responsiveness to also emphasize an innovation strategy. A similar, but smaller, association exists for focus and low cost strategies. Company executives who employ customer responsiveness and innovation strategies also tend to perceive their environment as more munificent, more turbulent and more predictable, whereas those who use a focus strategy tend to view their environment as less turbulent.

Tactics

Company executives in the motor carrier industry use a variety of tactics to realize their competitive strategies. Respondents were given a list of tactics that are commonly used in the industry. They indicated the extent to which they used or avoided the tactics. Five tactics were mostly used by a majority of companies: put profits back into the business, employ company drivers, invest in fuel efficient equipment, emphasize employee training, and conduct personal selling. Three tactics were mostly avoided by the respondents: relay drivers, hire newly trained drivers, and mass marketing of services (See Exhibit V.4). The only tactic that had an even report of usage and avoidance was contracting with owner operators (See Exhibit V.3). In other words, this tactic was not employed universally; its use was contingent on the resource and strategic position of the company.

A number of competitive tactics have been touted recently as ways to realize competitive strategy. Although these tactics had generally been tried during the last 3-9 years, none of these tactics were rated to be mostly used by a majority of the respondents. For instance, 26% of the companies mostly used on-board computers, whereas 19% mostly avoided them. This is also true with satellite tracking systems and benchmarking. Stated differently, these tactics are contingent on firms' circumstances. One tactic received fairly consistent avoidance. About 44% of the respondents indicated that alliances with competitors were mostly avoided (See Exhibit V.4).

Our analysis reveals that some tactics are commonly used together. For example, satellite tracking and on-board computers; partnerships with suppliers and benchmarking; and activity based costing (ABC), electronic data interchange (EDI), total quality management (TQM), and reengineering were used together. The use of ABC, EDI, TQM, and reengineering are also strongly associated with companies that emphasize innovation and customer responsiveness strategies. The degree to which companies follow cost leadership and focus strategies does not appear to be associated with the use of any particular tactic. Executives who use the tactics of partnerships with suppliers and benchmarking seem to perceive that they are able to control their environment.

Policies

In addition to various strategies and tactics that companies used, we were also interested to what extent the companies used various policies. Two thirds of the respondents indicated that they defined their target customers and limited the speed of their equipment to a large extent. A majority of the respondents also reported that they mostly balanced shipping lanes, reduced equipment overcapacity, and limited driving hours beyond that required by law (See Exhibit V.5).

Company Strengths

The objective was to learn about how companies' strategies and tactics were related to their strengths. Therefore, the respondents were asked to indicate what departments and resources were considered as their companies' strengths.

Departments and activities

Motor carriers often have many departments or activities that can lead to a company's success. The extent to which each of these departments makes its contribution is an important issue with respect to how motor carriers compete. Customer service was rated as the overwhelming winner in this category. It was followed by operations, safety, and communications as contributing to a large extent to company's success. A majority of the companies also indicated road dispatch, sales, maintenance, and support staff as company departments leading to competitive edge over rivals. Only a few companies used their activities in industrial engineering, legal services, and electronic data interchange (EDI) as the basis for their high performance (See Exhibit V.6).

Resources

Respondents were asked about the relative strengths of many aspects of motor carrier companies as compared to their competitors. Most respondents (88%) rated relationships with customers to be their company's strength. About three fourths of the executives noted company management and drivers to be their valued resources. A majority of the respondents indicated that they considered name recognition and technical know-how to be their companies' competencies.

More than 90% of the executives did not consider patents and copyrights as their company's strengths. Similarly, about 70% of the respondents did not believe their union status or rural location offered them advantages. A majority of the executives disputed that their company size or equipment other than tractors and trailers offered them any edge over their rivals. Exhibit V.7 gives a complete breakdown of the responses.

Companies often maintain resources in excess of what they minimally need to provide room for growth. These excess resources are considered slack. In order to determine how much slack firms have, respondents were asked how much a 10% decrease in resources would affect their organization. About half of the respondents felt that the output of their organizations would be affected to a large extent (See Exhibit V.8).

A significant resource for motor carriers is the tractors, trailers and other trucks that are used to deliver freight. Respondents were asked how long companies kept their equipment. On average, companies keep their trailers 10 years, and tractors and other trucks about 6 years. On average, SC carriers tended to keep their equipment longer than either TL or LTL carriers, with TL keeping equipment the shortest time (See Exhibit V.9).

Summary of Key Points

- Although companies are sensitive to issues of price, most companies pursue a strategy of differentiation rather than cost leadership to gain competitive advantage.
- Companies that use customer responsiveness also tend to use innovation strategies.
- Companies that emphasize customer responsiveness and innovation strategies also tend to view the environment as more munificent, turbulent, and predictable, while companies that emphasize a focus strategy tend to perceive it as less turbulent.
- Tactics are commonly used together and the use of TQM, EDI, Reengineering, and ABC are also strongly associated with companies that emphasize innovation and customer responsiveness strategies.
- Executives who use the tactics of partnerships with suppliers and benchmarking seem to perceive that they are able to control their environment.

SECTION VI

ORGANIZATIONAL STRUCTURE AND CONTROL SYSTEMS

This section discusses corporate structure, top management teams, and mechanisms of internal structure and control systems of companies.

Corporate Structure

We were interested in the corporate structure of the companies in the industry, particularly whether they were a division or subsidiary of another company, what that parent company was like, and the ownership structure of the company. Respondents indicated that overall, 70% of the companies were not a division or subsidiary of another company. These results were similar across carrier types. Of the companies that were a division or subsidiary of another (parent) company, 70% had businesses related to varying degrees. The rest of the companies' operations were almost evenly divided between single business and unrelated businesses. Of the related businesses, 70% had higher degree of relatedness, whereas 30% had lower degree of relatedness among its divisions in TL and LTL companies. However, the distribution of the companies for high and low relatedness for the SC carriers was reversed (See Exhibits VI.1 and VI.2).

The ownership structure of the responding company or the parent company is also an important aspect of structure. About 76% of the respondents indicated that their firm (or the parent company) was a privately held corporation, with an additional 8% being a partnership or sole proprietorship. Overall, only 8% of the firms or their parent companies were publicly traded corporations. LTL carriers were more likely (19%) to be publicly held corporations compared to TL and SC (6-7%) (See Exhibit VI.3).

Top Management Teams

The average size of the top management team of the companies responding was about 6. We asked what the backgrounds of these individuals were. Many respondents indicated that the members of the top management team had exposure to several fields. The background area indicated most often in TL, LTL, and SC categories was Management (See Exhibit VI.4).

Internal Structure and Control Systems

Companies vary in the way they function internally. However, all of them need some levels of specialization and decentralization because top executives can't carry out all activities by themselves. At the same time, they need to coordinate their activities through formal rules and regulations, standardized procedures, and integrative mechanisms.

Specialization

Specialization is the differentiation of tasks within the organization. We asked respondents to indicate how much they agreed or disagreed with a number of statements to determine how much specialization was used in their company. A vast majority of the respondents indicated that their employees were knowledgeable of their roles related to company goals. They also revealed that different jobs in the company required various specialized skills. Additionally, a majority of the executives expressed that their specialization did not result in an ineffective fragmentation of the company. These responses indicate that specialization is an important and valued part of most motor carriers (See Exhibit VI.5).

Decentralization

Decentralization is the vesting of lower-level managers with decision making authority. We asked respondents to what extent they delegated decision making on a variety of tasks. About two-thirds of the companies had centralized capital expenditure decision-making. Also, a majority of executives did not delegate making major changes in the way they delivered their services. Clearly, most respondents felt strongly that these changes were less likely to be delegated than decisions about hiring and assigning lower level managers (See Exhibit VI.6).

Formal rules and regulations

Formalization refers to the use of (usually) written policies, procedures, and rules. About 90% of the companies developed formal procedures and policies and used them at least to some extent. A majority of the companies had written rules and enforced them strictly. Over 40% of the companies reported having written mission statements, and over one-third have a formal organization chart. The coordination of activities in the motor carrier industry through written policies and procedures appears to be widespread (See Exhibits VI.7 and VI.8).

Standardized procedures

Standardized procedures reduce uncertainty and improve coordination in the company, which enhances its efficiency. Respondents were asked to indicate to what extent activities were coordinated through various practices. Most companies (67%) orchestrated their activities through informal processes among individuals followed by using people with specific types of skills (63%). A majority of the companies also used reports of performance results, predetermined work schedules, and identification of acceptable levels of output quantity for coordinating their activities. Interestingly, a large proportion of companies (44%) reported that they did not use the mission statement for communication and coordination. These results indicate that standardization of work procedures and schedules, coupled with monitoring of performance and informal communication among workers are commonly used methods to improve efficiency in the motor carrier industry (See Exhibit VI.9).

Integrative mechanisms

Specialization of activities necessitates their integration to accomplish company goals. It helps in the coordination of activities and tasks and includes structural liaison devices, process liaison, and controls. We were interested in two aspects of integration: integration controls and liaison devices. With respect to controls, respondents were asked to indicate the extent to which their organization used various practices to gather information about the performance of the company. Profit centers and profit targets were most popular control mechanisms, whereas sampling and other quality control techniques were least popular. The remaining practices such as cost centers, formal appraisal of personnel, and budgets, were also frequently used (See Exhibit VI.10).

Questions about liaison devices were asked in two sections. The first section asked to what extent various mechanisms were used to ensure the compatibility of decisions across departments. No single mechanism was used by a majority of the respondents, although 47% of the respondents used regularly scheduled meetings to a large extent. Noteworthy were the four mechanisms that were not used much by a majority of the companies: liaison personnel, interdepartmental charges to balance the impact of decisions, temporary task forces, and bargaining among the heads of departments. We also asked about the extent to which the company engaged in participative discussions across different departments with regard to various types of decisions. Respondents indicated that these interactions were more frequently used for product and service decisions and long-term strategies than for capital budgeting decisions (See Exhibits VI.11 and VI.12).

Executives' responses reveal that while an integrative emphasis was placed on cost control by many motor carriers, decisions about internal transfers and capital budgeting were less integrated into the organizations.

Statistical analysis indicates that companies that emphasize business strategies of innovation and customer responsiveness also score higher on the internal structural variables. However, companies that emphasize low cost and focus strategies vary widely how they use the coordination and control mechanisms.

Summary of Key Points

- About 70% of the motor carrier companies responding are not divisions or departments of other organizations.
- 76% of the companies responding are privately held corporations and only 8% are publicly traded corporations.
- The top management team averages about 6 people, with management as an area of expertise mentioned most frequently.
- Differentiation of tasks by specialization is important to most motor carriers.
- Delegation is more likely to occur with hiring and assigning lower level managers than in areas of capital expenditures or when making major changes.

- Use of work procedures and schedules, monitoring of performance, and informal communications are the primary methods of standardization within the industry.
- Coordination of activities and tasks is emphasized in the area of cost control but were less emphasized in decisions about internal transfers and capital budgeting.
- More emphasis on innovation and customer responsiveness business strategies is associated with higher degrees of the internal structural variables.

SECTION VII BUSINESS BELIEFS

This section discusses top executives' beliefs about competing in the industry, constituent pressures, and conceptions of the working of their organization.

Beliefs about Conducting Business

Executives may conceptualize their work and organization in many ways. We were interested in understanding what perceptions executives have about what it takes to be successful and how they think about their company.

Competitive beliefs

We asked our respondents to indicate how much they agreed or disagreed with a number of statements that suggest different beliefs about how their company competes. An overwhelming number (93%) supported the notion of service as the key to success, followed by the role of efficiency in business, lowering driver turnover, and increasing average driver tenure in the company. More than 60% of the respondents indicated their support for comprehensive planning and hiring experience drivers. About 55% of the executives supported the role of information and marketing. A majority of our respondents believed that experience as well as analytical techniques played a significant part in the success of a company in the motor carrier industry. Additionally, about 87% of the respondents disagreed with the belief that flexibility was not important in the industry. These results indicate that most executives believe that service, efficiency and flexibility, together with minimizing one of the industry's ongoing problems, driver turnover, are the primary ways of competing in the motor carrier industry (See Exhibit VII.1).

Constituent Pressures

People and organizations with an interest in the company can create pressures for an executive to act in specific ways. Respondents were asked to indicate how much they agreed or disagreed with a number of statements to determine how much pressure they were experiencing and where that pressure came from. Over half of the respondents indicated that their destiny was in their hands even though they did experience tremendous pressures to be efficient and productive. They also revealed that their goals were compatible with those of their constituents. A vast majority of respondents disagreed, many of them strongly, with the statement that the government had a relatively small influence on the industry (See Exhibit VII.2).

Metaphors

Organizations can be thought of in many different ways. Comparing an organization to different concepts helps understand how an executive thinks about the organization. Interestingly,

company as an experiment was the most popular metaphor (66%), followed by machine (52%), and sports team (50%). On the other end of the spectrum, over 80% disagreed that they thought of their organization as a family (See Exhibit VII.3).

Summary of Key Points

- In general, executives believe that service, efficiency, and flexibility are keys to competing in this industry.
- Controlling driver turnover continues to be a significant concern of most executives.
- Executives experience significant pressures to be efficient and productive.
- The government has a strong influence on the industry.
- Executives tend to view their organizations as something that can be directed such as an experiment, a machine, or a team rather than a family.

SECTION VIII BACKGROUND OF RESPONDENTS

This section discusses motor carrier executives' background in terms of general demographic factors, education, experience, functional expertise, and income.

Demographics

Respondents were asked for their demographic characteristics. As expected, most of them were white, non-Hispanic, and male. Only 5% of the respondents were female (slightly more in TL and LTL than SC), and about 3% were other than white, non-Hispanic. The average age of the respondents was about 49 years, with SC executives being somewhat younger (See Exhibit VIII.1).

Experience, Education and Expertise

Questions about the professional background of the respondents revolved around experience in the industry, education, and primary area of expertise. Respondents had an average of about 26 years experience in the transportation industry. Overall, that experience averaged about 20 years with their current company, the last 13 years being in their present position. Some differences were apparent across carrier types. While the number of years in the industry and with their current company were very similar across types, respondents from SC carriers averaged a lower number of years in their present position (11) than TL and LTL (13). We also asked respondents whether they had been owner operators. Only a small proportion of the executives (15%) have had that experience. Respondents from SC and TL carriers were slightly more likely (16%) to have been owner operators as compared to LTL (11%). Ownership of the company reflects an additional aspect of experience in the industry. Overall, respondents owned about one-third of their company. This figure was somewhat higher in TL (36%), than LTL (31%) and SC (30%) (See Exhibit VIII.1).

As expected, executives with more experience were found to view industry environment as less turbulent. They also viewed industry environment to be less controllable, which may be attributed to their experiencing de-regulation and other drastic changes in the industry. New executives were more likely to use the modern tactics such as benchmarking, partnerships with suppliers, and EDI.

Respondents were also asked about their level of education and area of expertise. Over one-half of the respondents had attained at least bachelor's degree and another 28% had some college or technical training beyond high school. These percentages were fairly similar across carrier types. Interestingly, almost two-thirds of the respondents indicated their primary area of expertise to be Management, with 14% reporting their expertise in Accounting, and about 5% each in the areas of Finance, Marketing, and Logistics. See Exhibits VIII.1 and VIII.2 for a further breakdown of these results.

Income

Respondents were asked to indicate which of the six categories reflected the total income from their job last year. Of the 95% who reported their income, more than two-thirds earned \$200,000 or less. Only about 12% earned more than \$300,000. There were differences across carrier types. About three out of four respondents from TL companies earned \$200,000 or less, whereas about one-half of LTL respondents reported income in that category. SC executives were more likely to earn in the \$200,001-\$300,000 category than the other two carrier types. Interestingly, 20% of the LTL executives earn in excess of half a million dollars as compared to about 2% in each of the other carrier types (See Exhibit VIII.3).

Summary of Key Points

- Most executives in the motor carrier industry are white males, about 49 years old.
- The average executive has over 25 years experience in the industry, most of which is with their present company, has about 12 years experience in the current position, and is likely to own about 30% of the company.
- More experienced executives tend to view the industry as less turbulent as well as less controllable. They also appear to place less emphasis on the modern tactics such as benchmarking, partnerships with suppliers, and EDI.
- About 15% of the respondents have been owner operators.
- Over half of the executives have at least a college (bachelor's) degree.
- Management is the primary area of expertise for about two-thirds of the respondents.
- While over two-thirds of the executives make \$200,000 or less per year, 20% of LTL executives earn more than half a million dollars.

SECTION IX ORGANIZATIONAL CHANGE AND EFFECTIVENESS

This section discusses organizational change and effectiveness from the point of view of the executives.

The dynamic nature of the motor carrier industry puts pressure on organizations to perform and to change, especially when performance is not at the expected level. This section deals with the executive's perceived degree of their company's success and change, and what areas of performance and change are the most important to the industry.

Change

A goal of this study was to determine how companies approach change. Over half of the respondents indicated that changes in their company tend to take them in the same direction, consistent with their mission, in a continuous and incremental way, rather than in a dramatic manner (See Exhibit IX.1).

Performance

Performance in the industry can be evaluated in many different ways. One important area is profitability (operating ratio), but it is desirable to know how executives evaluate their performance in relation to other companies in the trucking industry on a broad range of possible outcomes.

Efficiency: Operating ratio

Respondents were asked to indicate their company's operating ratio for 1996. This figure was, on average, about 95% for all carriers, with a range from 70% to 111%. LTL carriers reported a slightly higher operating ratio and TL and SC reported slightly lower numbers (See Exhibit IX.2).

A number of strategy and structure variables were examined to determine the impact that they have on a company's operating ratio. Statistical analysis has shown that a company will tend to have a lower operating ratio if they are of larger size in terms of number of employees and emphasize customer responsiveness. Companies that emphasize innovation tend to have a higher operating ratio. Further analysis indicates that effects of innovation and customer responsiveness are relative to the size of the company. Customer responsiveness tends to have an even greater positive effect (lower operating ratio) as the size of the company increases. Innovation strategies tend to have a greater negative effect (higher operating ratio) as the size of the company increases.

Effectiveness

Companies can be effective in many different aspects of the business aside from financial success. The respondents compared their company to other companies in the industry on several of these measures of effectiveness. Respondents were also asked, based upon their experience, how much worse or better their company's performance was, as compared to other companies in the industry, in regard to a number of outcomes that a motor carrier company might pursue.

Exhibit IX.3 presents a distribution of executives' responses with respect to generic performance criteria. For example, about a third of the respondents rated their company's reputation to be significantly better than other companies in the industry. Similarly, nearly a quarter of the executives indicated that their company's quality of services was significantly better than their competitors (See Exhibit IX.3).

Executives' responses with respect to performance criteria specific to the motor carrier industry are depicted in Exhibit IX.4. These data indicate that about a third of the trucking companies distinguished themselves on the basis of their customization. About a quarter of the companies were significantly better than others in the area of on-time deliveries. Only about a fifth of the firms experienced significantly better on-time pick-ups, consistent transit times, accident rates, and equipment breakdowns. Fewer companies were able to achieve significantly better results in other criteria such as "logging" compliance, loss/damage history. Only about 5% of the companies could boast of significantly better fuel consumption or miles driven per driver (See Exhibit IX.4).

We also asked our respondents to rate their overall performance on a scale of 1 to 7. Most respondents (about 36%) gave themselves a score of 6. About a third rated themselves 5, whereas about 13% indicated their rating to be 7. These proportions varied with respect to the type of company; SC executives giving themselves highest score, followed by TL and LTL, respectively (See Exhibit IX.5).

Summary of Key Points

- Change was reported to take companies in the same direction they were headed, consistent with their mission, in a continuous, incremental (not dramatic) manner.
- Operating ratios in the industry average about 95%, with TL and SC being somewhat more profitable, and LTL somewhat less profitable. The range of operating ratios reported was from 70% to 111%.
- Company size and customer responsiveness tend to reduce operating ratios, whereas innovation tends to increase operating ratios. The effects of customer responsiveness and innovation go up as company size increases.
- The surveyed companies reveal varied levels of success with respect to different performance criteria.

SECTION X CONCLUSIONS

This study is a comprehensive examination of strategy, structure, and performance in the Motor Carrier Industry, and is designed to build understanding of how competitive advantage is achieved. A broad sample of trucking companies resulting in 332 responses provided information for this study. These companies represented truckload (TL, 65%), less-than-truckload (LTL, 17%), and special commodity carriers (SC, 17%).

Respondents were top executives of these motor carrier companies. Most executives responding to this study are white males, about 49 years old. On average, they have over 25 years experience with about half of that in their present position. Most have a college education, a primary area of expertise in Management, and earn \$200,000 or less per year. Their companies are generally privately held corporations, and they own, on average, about one-third of the company.

The executives consider the business environment they face to continue to support growth. They perceive the environment to be moderately turbulent, somewhat predictable, but not controllable. Their competitive beliefs emphasize service, efficiency, flexibility, and the need to minimize driver turnover. They are likely to view their company as an experiment, machine or sports team, and not as a family. While they recognize pressures from stakeholders and government for efficiency and compliance, they have a strong sense of self-determination. Changes in the company are seen as continuous and incremental, not dramatic. Executives with more experience in the industry tend to view the industry environment as less turbulent and less controllable. They are also less likely to use modern tactics such as benchmarking, partnerships with suppliers, and EDI.

The primary market for most carriers is regional. The secondary market for TL and SC is national, but for LTL it is local. Most companies emphasize strategies that would differentiate the company on the basis of customer responsiveness. Companies place great importance on reliability, quick response, and customization of services. They strive to offer quality, innovative, and varied services designed to meet customer needs.

The strong customer responsiveness emphasis is reflected by the importance placed on departments that create good customer service and in having company strengths in areas that support a good customer service reputation. Many tactics appear to go hand-in-hand. For example, companies tend to use satellite tracking systems and on-board computers together. Similarly, companies tend to use reengineering, TQM, ABC, and EDI simultaneously. Likewise, partnerships with suppliers and benchmarking seemed to be used with each other. The use of reengineering, TQM, EDI, and ABC are also strongly associated with companies' emphasizing innovation and customer responsiveness strategies. The degree to which companies follow cost leadership and focus strategies does not appear to be associated with the use of any particular tactic. Executives using partnerships with suppliers and benchmarking perceive that they are able to control their environment.

Low cost is not the primary strategy companies consider, but the importance of competitive pricing and efficiency seem to be of significant importance to the industry. A majority of companies

put profits back into the business, invest in fuel efficient equipment, and employ and train company drivers. Companies' use of policies such as defining target customers, limiting speed of equipment, balancing shipping lanes, reducing equipment overcapacity, and limiting driving hours beyond that required by law further reflect an emphasis on efficiency.

The companies generally have formalized policies and procedures that emphasize standardized work procedures and schedules and place an integrative emphasis on cost control. Moreover, they require employees who have specialized roles and use decentralized decision making for the hiring and scheduling of personnel. Decisions about capital budgeting or major changes in how the company produces its service are likely to be made by the top executive.

Statistical analysis of the data reveals that different variables such as executive characteristics, their perceptions of environment, company strategy, structure, tactics, and performance have direct as well as indirect relationships with one another. For example, more experienced executives viewed industry environment as less turbulent. They also perceived industry environment to be less controllable, which may be attributed to their experiencing de-regulation and other drastic changes in the industry. In contrast, new executives were more likely to use the modern tactics such as benchmarking, partnerships with suppliers, and EDI, which may enhance their perceptions of the controllability of their industry environment.

We also found that executives' perceptions of their industry environment were related to their business strategies. For example, executives who perceive their industry environment to be more munificent, turbulent, and predictable, also tend to emphasize customer responsiveness and innovation strategies. Similarly, executives of companies with focus strategies viewed their environment to be less turbulent.

Regarding the relationships between strategy and structural variables, we found that companies, which emphasize business strategies of innovation and customer responsiveness also score higher on the internal structural variables such as specialization, standardization, and integrative mechanisms. However, companies that emphasize low cost and focus strategies vary widely how they use the coordination and control mechanisms.

Further analysis has shown that a company is likely to have a lower operating ratio if they are of larger size (in terms of number of drivers) and emphasize customer responsiveness. Companies that emphasize innovation tend to have a higher operating ratio. Further analysis indicates that effects of innovation and customer responsiveness are relative to the size of the company. Customer responsiveness tends to have an even greater positive effect (lower operating ratio) as the size of the company increases. Innovation strategies tend to have a greater negative effect (higher operating ratio) as the size of the company increases.

EXHIBITS

Exhibit III.1
The motor carrier industry and rural areas in the U.S.

	TL	LTL	SC	All Carriers
Mean percent of customers living in rural areas	16	18	17	16
Mean percent of drivers living in rural areas	36	24	27	33

Exhibit III.2
Descriptive Information: Carrier Type, Income by Type, and Contract or Common Carriage

	TL	LTL	SC	Total
<i>Respondents by type of carrier</i>				
Number	222	54	56	332
Percent of total	67%	16%	17%	100%
<i>Income percentage reported in category</i>				
All companies reporting	52%	14%	35%	*
TL	70%	2%	30%	*
LTL	18%	65%	19%	*
SC	13%	11%	78%	*
<i>Percent of income from common or contract carriage</i>				
Common Carriage	34%	70%	51%	43%
Contract Carriage	65%	30%	49%	57%

* Exceeds 100% due to rounding.

Exhibit III.3
Income percentages in TL, LTL, and SC categories by carrier type.

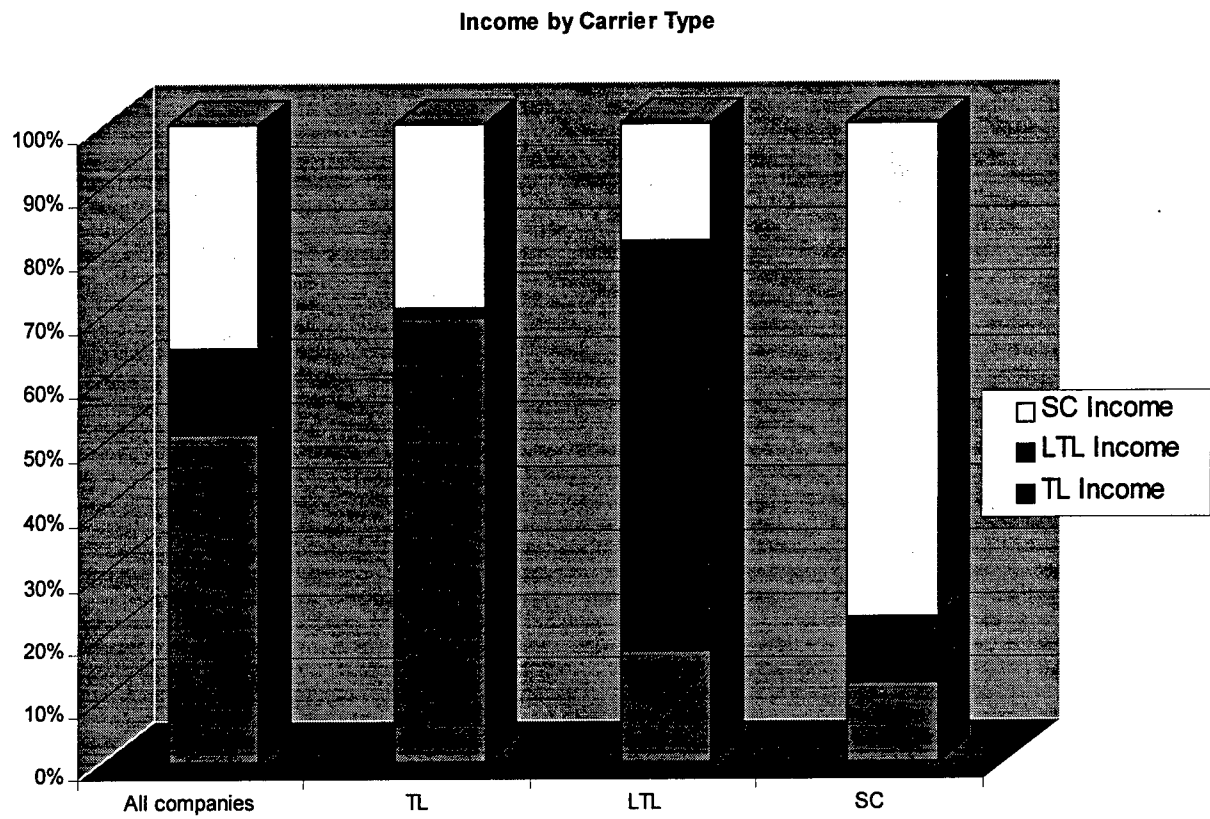


Exhibit III.4
Descriptive Information: Market scope and workforce characteristics

	TL	LTL	SC	All Carriers
<i>Percent of companies reporting market scope in the follow areas:</i>				
Local	6	24	9	9
Regional	39	37	32	37
Super Regional	13	13	11	13
National	34	18	25	30
International	6	6	16	8
No Response	2	2	7	3
<i>Workforce characteristics</i>				
Mean number of company drivers	194	1382	1963	678
Range of company drivers	0-8,000	0-20,000	0-94,000	0-94,000
Mean number of owner operators	94	53	135	95
Range of owner operators	0-3,500	0-1,000	0-1,600	0-3,500
Mean percent of union drivers	7	17	16	10

Exhibit IV.1
Environment: Munificence

<i>Munificence</i>	Percent Responding		
	Decreased a Lot or Decreased Somewhat	About the same	Increased Somewhat or Increased a Lot
TL	5	57	38
LTL	2	46	52
SC	4	51	45
All	4	54	42

Exhibit IV.2
Environment: Complexity

<i>Complexity</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
TL	50	35	15
LTL	43	35	22
SC	45	38	18
All	48	35	17

Exhibit IV.3
Environment: Turbulence

<i>Turbulence</i>	Percent Responding		
	No Changes or Hardly Any Changes	A Few Changes	Some Changes or Many Changes
TL	19	60	21
LTL	26	55	18
SC	21	48	30
All	20	57	22

Exhibit IV.4
Environment: Predictability

<i>Predictability</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
TL	42	48	10
LTL	37	50	13
SC	38	54	9
All	41	49	10

Exhibit IV.5
Environment: Controllability

<i>Controllability</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
TL	85	14	1
LTL	89	11	0
SC	88	11	2
All	86	13	1

Exhibit V.1
Competitive Strategies and Tactics: Sources of Competitive Advantage

<i>To what extent do you consider the following as a source of your company's competitive advantage?</i>	Percent Responding				
	Not at All	A Little	To Some Extent	To a Large Extent	To a Very Large Extent
Reliability	0	2	8	32	57
Quick response	0	3	10	39	48
Customization of services	0	5	19	38	37
Productivity	9	10	27	39	22
Innovativeness	1	14	30	37	18

Exhibit V.2
Competitive Strategies and Tactics: Strategies

<i>To what extent do the following reflect the strategies used by your company to gain a competitive advantage?</i>	% Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Improve customer satisfaction	2	14	84
Offer higher quality services than competitors	3	13	84
Offer innovative services	15	32	53
Match varied customer needs	14	32	53
Focus efforts on a particular type of freight	23	29	47
Offer competitive prices	14	41	44
Offer services with distinctly different features from those of competing services	27	34	39
Stick to limited geographic area(s)	36	26	37
Stick to certain shipper types	32	32	35
Offer only a few services that you know well	34	31	35
Strive for high volume	50	31	18
Offer low prices	70	19	10
Be the lowest cost provider in your industry	72	19	8

Exhibit V.3
Competitive Strategies and Tactics: Competitive Tactics

<i>How much do you avoid or use the following competitive tactics to realize your competitive strategies?</i>	Percent Responding				
	Almost Always Avoid or Mostly Avoid	Sometimes Avoid	Neither Avoid nor Use	Sometimes Use	Mostly Use or Almost Always Use
Put profits back into the business	0	1	4	18	77
Employ company drivers	9	1	2	12	75
Invest in fuel efficient equipment	3	1	11	16	68
Emphasize employee training	1	2	10	25	60
Conduct personal selling	5	1	11	30	52
Monitor industry trends	2	1	12	36	47
Purchase specialized equipment	8	2	15	29	45
Customize services	3	2	10	39	46
Emphasize shortest driving routes	5	0	16	32	46
Invest in equipment to control loss or damage	5	2	16	32	45
Emphasize shortest driving time	7	1	17	32	42
Emphasize contract rates	11	2	15	29	42
Perform job costing	4	2	19	33	41
Involve employees in decision making	4	4	7	46	39
Concentrate on high volume lanes	8	3	20	30	38
Contract with owner operators	28	1	8	29	34
Depend on a few large customers	14	6	16	32	31
Offer dedicated contract service	12	1	14	41	31
Have high tractor to trailer ratio	24	4	31	17	22
Advertise services	26	3	25	30	13
Offer third-party services	28	2	25	35	10
Hire newly trained drivers	40	5	10	33	10
Drive in teams	35	1	18	37	9
Work with broker services	27	5	10	50	8
Relay drivers	44	2	23	22	8
Mass-market your services	39	8	30	16	6

Exhibit V.4
Competitive Strategies and Tactics: Competitive Tactics

<i>How much do you avoid or use the following competitive tactics to realize your competitive strategies?</i>	Percent Responding						Median Year First Used
	Almost Always Avoid	Some-times Avoid	Neither Avoid nor Use	Some-times Use	Mostly Use or Almost Always Use	No Response	
Total quality management program or process	8	2	25	25	30	10	1992
Activity-based costing	9	2	27	24	28	10	1990
Satellite tracking systems	21	0	33	5	26	14	1995
On-board computers	19	0	34	8	26	12	1993
Partnership with suppliers	13	1	22	33	23	8	1990
Electronic data interchange	11	2	16	43	19	9	1993
Benchmarking	14	2	28	28	14	14	1990
Re-engineering	16	2	40	18	11	13	1993
Inter-modal	31	1	26	20	7	15	1990
Alliances with competitors	44	3	12	25	6	11	1990

Exhibit V.5
Competitive Strategies and Tactics: Policies

<i>To what extent do you use the following policies in your company?</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Define target customers	7	22	71
Limit speed of equipment	11	21	68
Balance shipping lanes	14	29	57
Reduce equipment overcapacity	13	28	57
Limit driving hours beyond that required by law	34	9	56

Exhibit V.6
Competitive Strategies and Tactics: Departments/Activities

<i>To what extent do the following departments/activities contribute your company's success, as compared to your competitors?</i>	% Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Customer service	4	11	84
Operations	6	20	75
Safety	12	19	70
Communications	14	22	63
Dispatch, road	18	24	57
Sales	13	29	57
Maintenance	18	28	54
Support staff	16	32	52
Dispatch, city	27	22	48
Marketing	22	31	47
Human resource management	27	31	41
Costing systems	31	31	37
Internal information systems	37	27	36
Logistics	39	27	35
Finance	34	32	34
Order processing	35	32	33
Billing	32	39	28
Electronic data interchange (EDI)	52	25	23
General accounting	44	37	19
Legal services	74	18	9
Industrial engineering	72	20	8
Others*	0	0	5

- * Listed under other: Employees, Incentive Based Compensation System, Flexibility, Transit Times, Van Line Support, Owner operators, Responsiveness, Recruiting Dept. for Drivers, Information Technologies, Senior Management Team, Operations Software & Imaging, Value Added Suggestions, MIS Systems.

Exhibit V.7
Competitive Strategies and Tactics: Company Strengths

<i>To what extent do you consider the following as your company's strengths as compared to your competitors?</i>	% Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Relationships with customers	2	9	88
Management	3	21	75
Drivers	7	20	73
Name recognition	13	25	61
Technical know-how	15	30	55
Company structure	24	30	45
Trailer fleet	17	38	44
Communications systems	24	32	43
Computers	29	31	39
Tractor fleet	21	41	36
Invoice and billing system	34	35	31
Terminals	41	29	29
Maintenance facilities	37	35	28
Distribution network	45	25	27
Partnership with suppliers	43	30	26
Inter-departmental relationships	49	26	24
The small size of your company	43	37	20
Union status	72	7	20
The large size of your company	55	25	19
Equipment other than tractors and trailers	59	24	14
Rural location	70	18	10
Patents and copyrights	94	3	2
Other*	0	0	1

* Listed under other: Willing to learn and change, 100% Owner/Operators, Experience of management/supervisors, Being non-union.

Exhibit V.8
Competitive Strategies and Tactics: Slack Resources

<i>Assume that due to some sudden development, the following circumstances have occurred. Indicate to what extent the output of your organization would be affected.</i>	Percent Responding				
	Not at All	A Little	To Some Extent	To a Large Extent	To a Very Large Extent
Your organization must operate on a 10% cost reduction.	3	13	37	34	13
10% of the time of everyone working in your organization has to be spent on work totally unconnected with the tasks and responsibilities of your organization.	2	12	29	36	20

Exhibit V.9
Competitive Strategies and Tactics: Equipment

	TL	LTL	SC	All Carriers
<i>How long companies keep equipment</i>				
Mean number of years for tractors	5.4	6.9	7.1	5.9
Mean number of years for trailers	9.5	11.4	13.2	10.4
Mean number of years for other trucks	4.4	7.2	8.2	6.0

Exhibit VI.1
Organizational Structure and Control Systems: Division or Subsidiary

<i>Is this company a division or subsidiary of another company?</i>	% Responding			
	TL	LTL	SC	All Carriers
No	70	76	63	70
Yes	22	20	23	22
No response	9	4	14	9

Exhibit VI.2
Organizational Structure and Control Systems: Characteristics of Parent Company

<i>Which of the following best characterizes the relatedness of the companies or divisions of your parent company?</i>	% Responding			
	TL	LTL	SC	All Carriers
Single business	12	33	14	16
Related businesses	56	47	21	49
Somewhat related businesses	16	13	50	21
Related total	72	60	71	70
Unrelated businesses	7	0	7	6
Entirely unrelated businesses	10	7	7	9
Unrelated total	17	7	14	15

Exhibit VI.3
Organizational Structure and Control Systems: Ownership Structure of Company or Parent

<i>Ownership structure of the company (or the parent company)</i>	% Responding			
	TL	LTL	SC	All Carriers
Publicly traded corporation	6	19	7	8
Privately held corporation	77	72	77	76
Sole proprietorship	6	4	4	5
Partnership	2	2	9	3
Other	1	0	2	1
No response	9	4	2	7

Exhibit VI.4
Top Management Background: Functional Background of Top Management Team

	TL	LTL	SC	All Carriers
<i>Percent of people with the following backgrounds on top management team *</i>				
Accounting	32%	33%	30%	32%
Finance	30%	26%	29%	29%
Management	58%	59%	58%	59%
Engineering	6%	10%	9%	7%
Human resources	23%	24%	21%	22%
Information systems	23%	23%	26%	24%
Law	8%	4%	7%	7%
Logistics	30%	27%	30%	29%
Marketing	37%	34%	28%	35%
Other	31%	30%	32%	31%
Average number of people on top management team	5.8	6.1	5.9	5.9

* Percentages add to more than 100% due to multiple background areas of individual team members.

Exhibit VI.5
Organizational Structure and Control Systems: Specialization

<i>How much do you agree or disagree with each of the following statements about your company?</i>	Percent Responding		
	Strongly Disagree or Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree or Strongly Agree
Employees are knowledgeable of their roles related to company goals.	5	8	87
Different jobs require various specialized skills.	4	10	85
Most positions in my company require distinct skills.	14	15	70
My company has many different job titles.	25	26	49
Most employees do similar types of work.	47	18	34
Often the decisions of the different departments don't work well together.	56	22	21
Each department makes decisions more or less on its own, without regard to other departments.	70	10	20

Exhibit VI.6
Organizational Structure and Control Systems: Decentralization

<i>To what extent do you delegate decision making authority in each of the following areas?</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Hiring mid-level management personnel.	36	30	33
Altering responsibilities of lower level managers.	32	39	28
Changing the way your organization serves its customers/clients.	42	36	20
Making major changes in the way your organization produces its products and/or services	55	27	16
Making capital expenditures	66	25	8

Exhibit VI.7
Organizational Structure and Control Systems: Formal Rules and Regulations

<i>To what extent does your organization . . .</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
have policy and procedure manuals?	10	24	65
develop formal procedures and/or policies?	10	29	60
strictly enforce rules?	12	32	55
have written rules?	15	13	54
use formal channels of communication?	23	41	36

Exhibit VI.8
Organizational Structure and Control Systems: Levels, Chart, and Mission

	TL	LTL	SC	All Carriers
<i>Mean number of organizational levels of the company</i>	4.3	4.7	4.5	4.4
<i>Percent of companies with organizational chart</i>	34	44	46	38
<i>Percent of companies with a written mission statement</i>	35	56	54	42

Exhibit VI.9
Organizational Structure and Control Systems: Standardized Procedures

<i>To what extent does your organization coordinate activities through . . .</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
informal communication processes among individuals?	6	26	67
use of people with specific types of skills?	7	28	63
reports of performance results?	18	26	54
predetermined work schedules?	14	31	54
identification of acceptable levels of output quantity?	15	32	51
standard work procedures?	12	38	49
minimum quality standards?	23	31	45
development of department goals/objectives consistent with the mission statement?	39	20	40
widespread communication of the mission statement?	44	23	31
direct observation of others' activities?	25	47	26

Exhibit VI.10
Organizational Structure and Control Systems: Integrated Mechanisms

<i>To what extent does your organization use each of the following to gather information about the performance of your firm?</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Profit centers and profit targets	19	22	58
Cost centers for cost control	29	25	45
A comprehensive management control and information system	28	27	44
Formal appraisal of personnel	32	24	44
Budgets	33	27	40
Cost control by fixing standard costs and analyzing variations	36	28	34
Sampling and other quality control techniques	44	32	22

Exhibit VI.11
Organizational Structure and Control Systems: Integrative Mechanisms

<i>To what extent are the following mechanisms used to ensure the compatibility of decisions across departments?</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Regularly scheduled meetings	24	26	47
Strategic planning	31	34	33
Executive directives	26	38	34
Interdepartmental committees	49	26	23
Temporary task forces	67	18	12
Bargaining among the heads of departments	53	28	17
Interdepartmental charges to balance the impact of decisions	70	20	6
Liaison personnel	75	17	5

Exhibit VI.12
Organizational Structure and Control Systems: Integrative Mechanisms

<i>To what extent does your company engage in participative discussions across different departments with regard to the following?</i>	Percent Responding		
	Not at All or A Little	To Some Extent	To a Large Extent or To a Very Large Extent
Product and service decisions	19	31	49
Long-term strategies.	28	25	46
Capital budget decisions	41	24	35

Exhibit VII.1
Managerial Perceptions: Competitive Beliefs

<i>These statements concern your own beliefs about how to compete in the motor carrier industry. Please indicate how much you agree or disagree with these statements.</i>	Percent Responding				
	Strongly Disagree or Disagree	Slightly Disagree	Neither	Slightly Agree	Agree or Strongly Agree
Service is the key to success	0	0	1	5	93
Efficiency is the essence of success	0	1	2	15	81
Lowering driver turnover is the key	0	1	3	17	79
Increasing average driver tenure is important.	1	1	4	15	77
Comprehensive planning is essential	1	2	6	24	65
Hiring experienced drivers is a must.	5	4	9	18	61
Providing information is becoming as important as moving goods	5	4	8	26	56
Marketing is vital for success	5	3	10	27	55
There is no substitute for experience in this industry.	5	6	9	28	51
Analytical techniques are very helpful	2	3	13	31	50
A company in this industry should have a low percentage of its costs as fixed costs.	8	8	16	24	42
In this industry, companies are out to get one another	20	13	22	25	19
Most customers are not willing to pay for good service	32	21	7	24	16
Inter-modal is the wave of the future	24	12	32	19	11
All in all, owner operators are not reliable	54	7	20	9	9
Flexibility is not important in this industry.	87	6	1	2	3

Exhibit VII.2
Managerial Perceptions: Constituent Pressures

<i>Please indicate how much you agree or disagree with these statements.</i>	Percent Responding				
	Strongly Disagree or Disagree	Slightly Disagree	Neither	Slightly Agree	Agree or Strongly Agree
My company experiences tremendous pressure to be efficient	3	4	11	20	61
We are highly dependent on our stakeholders.	18	3	24	11	42
Stakeholders' demands do not conflict with our company's internal functioning	14	11	25	12	36
Conforming to industry traditions improves the image of my company	2	13	30	19	32
Legal pressures limit how we do business in my company	14	6	21	27	30
We have to follow norms and values of the industry	16	10	23	25	25
Stakeholders' pressures do not affect our major decisions	27	15	19	13	24

Exhibit VII.2 (Continued)
Managerial Perceptions: Constituent Pressures

<i>Please indicate how much you agree or disagree with these statements about stakeholders and constituents.</i>	Percent Responding				
	Strongly Disagree or Disagree	Slightly Disagree	Neither	Slightly Agree	Agree or Strongly Agree
In this company, our destiny is in our hands	4	4	5	19	66
Our goals are compatible with our constituents' goals.	2	3	18	23	52
My company experiences pressure for productivity	4	4	13	28	50
We have several stakeholders	21	4	18	11	42
We often confront multiple conflicting pressures	4	3	22	27	42
There are well developed norms for competing in this industry	10	12	18	31	27
What other companies do in our industry has a big influence on our functioning	15	11	13	35	25
We conform to pressures to be acceptable in society.	17	8	31	22	20
Trade associations have a weak influence on our industry	30	17	17	16	19
Our business is largely influenced by forces beyond our control	30	18	13	20	18
Our constituents tell us what to do	33	10	28	16	10
Stakeholders' pressures threaten our independence.	39	9	32	10	7
Overall, the government has a relatively small influence on our industry	81	8	3	5	1

Exhibit VII.3
Managerial Perceptions: Metaphors

<i>Organizations are understood and described in several different ways. For example, some executives may think of their company as a "family" while others may describe it as a "machine." How much do you agree or disagree that you think of your organization as a . .</i>	Percent Responding				
	Strongly Disagree or Disagree	Slightly Disagree	Neither	Slightly Agree	Agree or Strongly Agree
experiment	4	4	5	19	66
machine	2	3	18	23	52
sports team	4	4	13	28	50
theater	21	4	18	11	42
bureaucracy	4	3	22	27	42
club	5	4	13	28	40
community	15	11	13	35	25
symbol of success	10	12	18	31	27
chameleon	30	17	17	16	19
person	30	18	13	20	18
democracy	33	10	28	16	10
workshop	39	9	32	10	7
family	81	8	3	5	1

Exhibit VIII.1
Top Management Background: Demographics, Experience, & Education

	TL	LTL	SC	All Carriers
<i>Demographics</i>				
Male	94	96	91	94
Female	6	4	7	5
Average age	49.9	49.3	47.7	49.4
<i>Ethnicity</i>				
American Indian/Alaskan Native	2	2	0	2
Asian/Pacific Islander	0	2	2	0
Hispanic	0	0	2	0
Black, non-Hispanic	0	0	0	0
White, non-Hispanic	96	93	95	95
Other	1	0	0	1
<i>Experience</i>				
Average number of years of transportation industry experience	25.8	28.0	23.9	25.8
Average number of years experience with this company	20.1	20.6	20.0	20.2
Average number of years in this job	13.4	13.3	11.2	13.0
Percentage of respondents that had been an owner/operator	16	11	16	15
Percentage ownership of the company	36	31	30	34
<i>Education (percentage in each category)</i>				
Some high school (grade 11 or less)	2	2	4	2
Graduated from high school or G.E.D.	15	7	5	12
Some college or technical training beyond high school (1-3 years)	27	30	32	28
Graduated from college (B.A., B.S., or other Bachelor's degree)	35	33	34	35
Some graduate school	8	11	5	8
Graduate degree (Master's, Ph.D., J.D., etc.)	13	11	18	14

Exhibit VIII.2
Top Management Background: Expertise

	TL	LTL	SC	All Carriers
<i>Primary area of expertise (percentage in each category)</i>				
Accounting	14	13	13	14
Finance	5	7	7	6
Management	64	67	66	65
Engineering	1	0	2	1
Information systems	0	0	0	0
Law	1	0	0	1
Logistics	4	0	7	4
Marketing	6	4	2	5
Other	4	4	0	3
Professional certifications	7	6	9	7

Exhibit VIII.3
Top Management Background: Income

	TL	LTL	SC	All Carriers
<i>Income (percentage in each category)</i>				
\$100,000 or less	45	24	25	38
\$100,001 - \$200,000	31	24	39	31
\$200,001 - \$300,000	10	17	21	13
\$300,001 - \$400,000	5	6	5	5
\$400,001 - \$500,000	3	2	2	2
\$500,001 or more	2	20	2	5

Exhibit VIII.4
Top Management Background: Income by Carrier Type

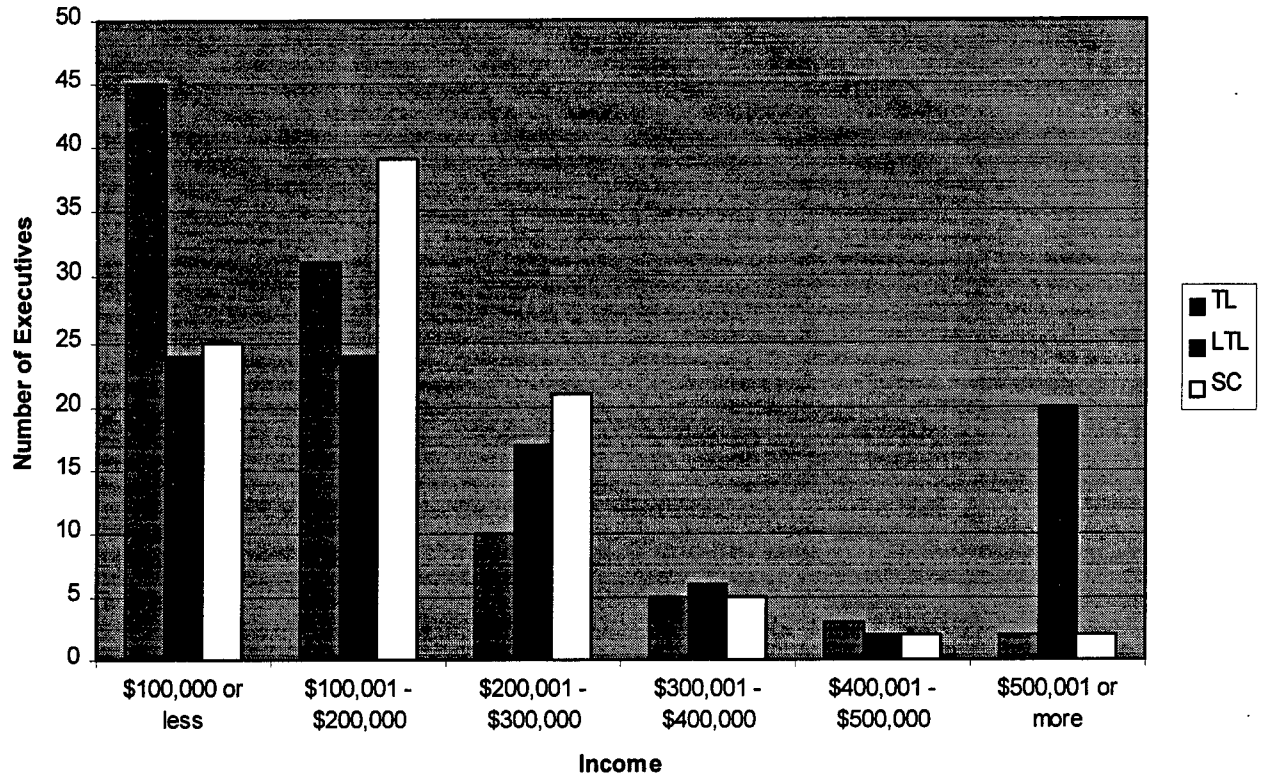


Exhibit IX.1
Organizational Change and Effectiveness: Perceptions of Change

<i>To what extent do you agree or disagree with the following statements?</i>	Percent Responding		
	Strongly Disagree or Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree or Strongly Agree
Our changes are consistent with the pursuit of our mission.	13	26	57
Most of our changes are consistent with our previous actions.	14	40	44
Change in my company is ongoing.	23	33	43
Most of our changes go hand in hand with our previous strategies.	18	40	40
Changes in our company lead us in the same direction.	20	40	38
Most changes in my company occur gradually.	22	42	36
We tend to make few changes at a time in my company.	45	34	19
Changes in my company usually take us in a new direction	61	28	10
My company makes several changes at the same time.	59	30	9
When changes occur in our organization, they tend to be dramatic.	64	25	8
We tend to make changes simultaneously.	59	31	7
My company doesn't change for a long period of time.	66	25	7
Most changes in my company usually take us in a new direction.	74	17	7

Exhibit IX.2
Organizational Change and Effectiveness: Profitability

	TL	LTL	SC	All Carriers
<i>Profitability</i>				
Survey data				
Number of companies reporting	173	43	40	256
Average operating ratio for 1996	94.727%	95.125%	95.085%	94.850%
Range of responses	70-111%	80-109.41%	76-101%	70-111%
TTS data				
Number of companies reporting	222	54	56	332
Average operating ratio for 1996	96.945%	98.078%	96.651%	97.080%
Range of responses	80.58- 184.48%	84.38- 116.97%	84.98- 111.89%	80.58- 184.48%

Exhibit IX.3
Organizational Change and Effectiveness: Generic Performance Criteria

<i>Compared to other companies in the trucking industry the . . .</i>	Percent Responding						Signifi- cantly Better
	Signifi- cantly Worse	Worse	Some- what Worse	Neither Worse or Better	Some- what Better	Better	
reputation of your company is	0	0	0	0	15	47	33
quality of your organization's services is	0	0	0	5	25	46	23
access to resources for regular operations is	0	0	3	22	27	38	8
job satisfaction of most employees in your organization is	0	1	3	15	36	37	8
access to resources for growth and expansion is	1	2	6	22	29	30	10
systems and technology of your company is	0	3	9	22	27	25	13
productivity per employee in your organization is	0	0	7	19	39	28	8
effectiveness of communication among your organization's subunits is	0	1	6	25	33	28	6
cost of producing your organization's services is	1	2	18	23	32	19	4

Exhibit IX.4
Organizational Change and Effectiveness: Experience Relative to Industry

<p><i>Below are some issues that may be of particular relevance in the trucking industry. Compared to other companies in the trucking industry, are your company's experiences in these areas better, worse, or about the same?</i></p>							
	Percent Responding						
	Signifi- cantly Worse	Worse	Some- what Worse	Neither Worse or Better	Some- what Better	Better	Signifi- cantly Better
Company's willingness to accommodate special customers' needs	0	0	1	5	21	40	34
On-time deliveries	0	0	1	11	21	43	24
On-time pick-ups	0	0	0	11	22	44	22
Consistent transit times	0	0	0	16	24	43	17
Accident rates	0	0	2	14	25	38	20
Equipment breakdowns	0	0	3	15	27	37	17
"Logging" compliance	0	1	2	21	21	40	15
Loss/damage history	1	0	3	16	28	34	18
Traffic safety rules compliance	0	0	1	20	26	38	14
Customer complaints	0	0	1	21	27	36	14
Insurance costs	0	1	4	18	29	34	14
Adherence to special shipping instructions	0	0	1	19	32	37	10
Ease with which drivers can locate pick-up and delivery sites	0	1	1	30	25	32	10
Fuel consumption	0	1	8	39	27	20	4
Miles driven per driver	0	0	5	41	29	18	5

Exhibit IX.5
Organizational Change and Effectiveness: Overall Performance

<i>Overall, how successful is your company?</i>	Percent Responding						
	Successful						Very Successful
	1	2	3	4	5	6	7
Truckload	0.5%	1.8%	1.8%	15.8%	30.6%	33.4%	12.6%
Less-than-truckload	0.0%	1.9%	5.6%	5.6%	25.9%	48.1%	9.3%
Special Commodity	0.0%	0.0%	1.8%	16.1%	26.8%	33.9%	19.6%
Overall	0.3%	1.5%	2.4%	14.2%	29.2%	35.8%	13.3%

